

ABSTRACT OF THE DISCLOSURE

A synchronous optical regenerator applies intensity modulation and phase modulation. The phase modulation is effected after the intensity modulation by the crossed Kerr effect in a Kerr fiber. The clock used for the phase modulation is obtained by injecting a continuous wavelength into the intensity modulator. The regenerator therefore includes a multiplexer coupling continuous light with the signals transmitted, an intensity modulator modulating the signals transmitted and the continuous light, and a Kerr fiber phase modulating the transmitted signals by crossed phase modulation with the intensity-modulated continuous light. Applications include wavelength division multiplex transmission systems.